FOR MYSORE STATE

~~Food and Agriculture~~ (1950) Department.

Pol. SERIES.

G.O. NO. 84 ~~Food and Agriculture~~

Dated 10th January 1950.

[Despatch Abstract.]

Agriculture – Indian Council of Agricultural Research – 8th meeting of the Crops and Soils wing of the Board of Agriculture and Animal Husbandry in India – Deputation of delegates from Madras province – Orders passed.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH.

'P' Block, Raisina Road, New Delhi.

F . 53 (1)/49-a, dated the 18th November,1949.

From

T.S. Krishnamurti, Esq.,

SECRETARY.

To

All Provincial Government and Constituent States.

Subject: Eighth meeting of the Crops and Soils Wing of the Board of Agriculture and Animal Husbandry in India.

Sir,

I am directed to refer to this office letter No. 53 (1)/49-A dated the 20th April 1949, and to forward herewith a copy of the agenda for the eighth meeting of the Crops and Soils Wing of the Board of Agriculture and Animal Husbandry in India to be held early during the next year. The exact date and place of the meeting will be intimated later.

2. I am to request that the names, designations, and addresses of the officials and nonofficials whom the Government of Madras/ect. propose to depute to the meeting may kindly be communicated to this office not later than the 15th december,1949. It is hoped that the government of Madras will be in a position to send a representative delegation consisting of officers and others with speical knowledge of the subjects to be discussed at the meetings especially those who do not usually have the opportunity of attending the meetings of the Advisory Board ~~Board~~of Council. As usual the travelling allowance of Provincial/State representatives (both officials and non-officials) will have to be met by the government concerned.

3. The members nominated and any other officers under the government of Madras etc. who may desire to submit notes on the various items of agenda may be asked to forward their notes, if any, together with 200 copies (printed or cyclostyled) so as to reach this office not later than 15th December 1949.

4. The constitution of the Crops and Soils Wing provides inter alia for two representatives of the Cooperative movement in India to be appointed by the Chairman of the Board The chairman of the Board will be glad to have the recommendations of the Government of Madras etc. before these appointments are made. I am to request that any names which the provincial/state government may have to suggest in this connection may kindly be communicated to this office as early as possible.

It is hoped that the provincial/state government will have no objection to this office corresponding direct with the representatives nominated by them for the meeting of the Board. Further details about the meeting will be sent to the members direct in due course.

/true copy/

Compared by N. Raghavan.

AGENDA FOR THE EIGHTH MEETING OF THE CROPS & SOILS WING.

1. Measures to be adopted for increased production of alternative food crops, particularly root crops like tapioca, sweet potato, yams, colocasia, etc for making up the deficit of food grains in the country.
2. A critical review of the causes for the consistently low yields of the major food crops in India as compared to other countries and measures necessary to improve them, both quantitatively and qualitative
3. Measures to check weeds in the fields of food crops with a view to save the loss caused by them with particular reference to chemical methods employed in other countries for this purpose.
4. The need for establishment of seed testing stations in India for maintaining the purity of the seed material and its freedom from seed borne organisms seed weed contents etc., as a measure to increase crop yields.
5. The scope and manner of utilisation of chemical fertilisers and compost.
6. The best possible method for extension and development work in agriculture in India for increasing agricultural production.

/true copy/

V.n.m.

Compared by N Rajaraman.

FOOD & AGRICULTURE.

Memorandum No. 56975K/49-1 dated 26--11-1949

Sub: Agriculture - I.C.AR Eighth meeting of the Crops and Soil wing of the Board of Agriculture and Animal Husbandry in Indai - Deputation of delegates from Madras Province.

Ref: Government letter No.41785 A II/49-2 Development, dated 12--5--1949.

A copy of the letter No. F.58 (1)/49-A d/18--11-1949, from the Indian Countil of Agriculture Research together with its enclosures is communicated to the Director of Agriculture for very urgent report in consultation with the Commissioner Food Production with reference to para 2 of the letter of the I.C.A.R.

2. With reference to para 4 of the letter the Director of Agriculture is requested to suggest in consultation

with the Registrar of Cooperative Societies, the names in the order of preference of three representatives of the Cooperative movement in the province suitable for appointment to the Board of Agriculture and Animal Husbandry in India.

4. The instructions in para 3 of the I.C.A.R.'s letter should be noted bythe Director of Agriculture, Commissio Food Production and Registrar of Cooperative Societies, and copies of notes if any should be sent by 10-12-1949.

5. The Director of Agriculture is requested to submit his reply to paras 1 and 2 above before 5-12-49 at the latest.

To
The Director of Agriculture,.
Copy to the Commissioner Food Production, Registrar of Cooperative societies.

/true copy/

v.n.m

Compared by N. Rajamani. N. Mohd Hanifa

7

BOARD OF REVENUE.

(FOOD PRODUCTION)

:Sub:

Agriculture - Indian Council of Agricultural Research - 8th meeting of the crops and soils wing of the Board of Agriculture and Animal Husbandry -

- -

Ref No. 10608/49-1F.P. III d/13-12-1949.

From

Sri C.K. Vijayaraghavan, I.C.S.,
Commissioner of Food Production.

Sri N.S. Mani, I.C.S.,
Secretary to the Commissioner of Food Production.

Read: From the Government, Food and Agriculture, Memo. 56973K/49-1 dated 26--11--1949.

2. From the Government, Food and Agriculture, Post copy of telephone message, d/10-12-1949.

With reference to para 3 of the Government memo 1st read above, the Board submits that it has not notes to be sent to the Government on the subjects proposed for discussion at the ensuing meeting of the Crops and Soils wing of the Board of Agriculture.

/true copy/

v.n.m.
3/6/

Compared by N. Raghavan.

AGRICULTURAL DEPARTMENT.

From

Sri R.M. Sundaram, I.C.S.,
Director of Agriculture,
Chepauk, Madras.

To

The Secretary to Government,
Food and Agriculture Department,
Fort. St. George, Madras.

Roc. D.1.882/49 dated 13th December 1949.

Sir,

Sub: Indian Council of Agricultural Research - Eighth meeting of the crops and soils wing of the Board of Agricultural and Animal Husbandry in India - Deputation of delegates from Madras Province.

Ref: Government memo No. 56973-K/49-1 dated 26--11--1949.

~~Xxxxggxxxxgxxxxgxxfx~~

I suggest that the following officials of this province may be deputed to attand the above meeting.

1. Director Agriculture,
2. Deputy Director of Agriculture.(North)
3. Paddy Specialist, Lawley road p.o.
4. Agricultural chemist.
5. Secretary to Commissioner of Food Production.

2. I forward herewith 202 cyclosyled copies of the notes prepared by officers of this department on subjects noted against each. I request that 200 copies of each of them may be transmitted to the council.

Designation of the officer.	Subject. ref. to items on the agenda.
1. Oil seeds specialist	p.6.

2. Government Agricultural Chemist.	No.1,2,3, & 5
3. Millet Specialist.	No.2
4. Paddy specialist.	No. 1 to 6
5. Cotton specialist.	No. 1 to 4
6. Fruit specialist.	No. 1 to 6
7. Govt. Lecturing & Systematic Botanist.	4 & 3.

3. A reply to para 2 of the government meme cited will be submitted as soon as I hear from the Registrar of Cooperative societies.

/true copy/

SECTION I.

Areas to be adopted for increasing production of alternative food crops particularly root crops like tapioca, sweet potato, yams, colocasia, etc., for making up the deficit of food grains in the country.

In any attempt to increase the production under these alternative food crops either by extension of the areas or by improving the yields per unit area it is essential to keep in mind the fact that the requirements of all these crops are not the same but vary very widely. For instance, in Madras privince the sweet potato is mainly grown as a garden crop, preferably on deep sandy soils. Tapioca, on the other hand, finds favour only the west coast and certain parts of south Arcot, Chingleput and Nellore where the rainfall is fairly high and the soils are either lateritic or gravelly. The elephant yam is cultivated on any extensive scale only in the west coast on dry land often mixed with ginger as a rainfed crop and also in the compuounds of houses under occasional

irrigations, while at times it is also raised a subordinate crop in turmeric fields. Colocasia is a fourth root crop grown in Malabar under rainfed conditions and in Chingleput and Tanjore one in rich garden lands and backyards under heavy manuring and copiously watered. It will be seen thus, that the extension of the area under each of these individual crops has to progress along a clearly demarcated geographical map which takes fully into account its characterestic needs and requirements. Any plan of extension in arable land is likely to be seriously hampered by the relatively poor money returns from these subsidiary crops. It will be therefore necessary to gear their production to an intensive exploitation of cultivable wastes and back yards of house sites in suitable tracts parallel to their cultivation under careful management and liberal fertiliser practices. Even so, no spectacular increases in production may be achieved unless an assiduous attempt is made to carefully select the planting material from high yielding types of proven quality. While for instance, white skinned and red skinned sweet potatos and acid and nonacrid colocasias are recognised, there seems to be no evidence whether these are varietal differences or are only due to variations in climate and soil. Unless exact knowledge on these aspect is made available to the grower, the produce would remain of unstandardised quality which will be the greatest single deterrent in the popularisation of these alternative food crops as substitutes or supplements to the main cereals. Briefly therefore the measures to be adopted for increasing production of these alternative food crops would comprise firstly, the delineati of the tracts suited for their cultivation, the harnessing of cultivable wastes and backyards of houses in such tracts

for their production, their careful management and liberal manuring, judicious selection of planting material of proven quality and an assessment of the factors which go to ensure uniform and standared qualities in the product which will be acceptable to the consumer as a substitute or supplement to cereal foods.

SUBJECT NO.I.

Measures to be adopted for increased production of alternative food crops particularly root crops like Tapioca, sweet potato, yams, colocasia etc. for making up the deficit of food grains in the country.

In any attempt to increase the production under these alternative food crops, either by extension of the area or by improving the yields per unit are

Most of the root crops suggested as alternatives or considered possible for cultivation in the Madras province will comeup only under coast. In canal irrigated rice regions, it will not be desirable to suggest a limited swithcover to any one of these root crops even if it is possible as it will prove extremely difficult to induce the rice cultivators to adopt the recommendations. The best way in which good measure of success can be achieved will be to utilise the fallow periods between harvest of one rice crop and the planting of another as in the rice deltas of Tanjore District and godavari by sinking wells to serve as supplementary irrigation sources during this peiod when the canals will remain closed (b) to make full use of the canal water running untilised during the three months from November to January in Godavari region in order to fit in a suitable root crop (c) to find whether in the districts the irrigation sources like tanks are undependable, where the rice lands situated in the tails ends of the channels cannot be brought under crops less exacting in water requirements (d) to restrict the cultivation of rice

to canal and tanked regions and to compel mrk other rice cultivators using lift irrigation from wells to switchover to other food and root crops with the object of bringing in more area and thereby producing more food per well and (e) to grant special facilities by way of concessions to farmers of high rainfall areas of west coast so as to induce them to bring in more vacant lands under root crops.

The keeping quality of many of the root crops is rather poor and therefore it will be very necessary to decentralise and limit their cultivation in order to avoid transport over long distances in search of markets, to aid quick local consumption and to avoid glut in production, Both Sweet potatoes and colocasia may fit in canal areas while tapioca and yams will suit the west coast. Short duration varieties, if they can be produced by breeding or introduced from other sources will help in removing the stress on irrigation sources and cultivation coasts.

A survey of the province with regard to possibilities of district wise development on the above lines and at the same time exbluding competiton with existing food crops, will be a necessary item before undertaking definite items of work.

/true copy/

V.n.m.
3/6/

Compiled by N. Rajaratnam

Subject I.

Measures to be adopted for increased production of alternative food crops particularly root crops like tapioca, sweet pototo, yams, colocasia etc., for making up the deficit of food grains in the country.

1. 2

Notes (a) The tuber crops are stressed in view of their adaptability to certain special conditions ability to give high yields of streachy food. The crops, sweetpotate, and tapioca, can be grown in soils unsuited for paddy and can be grown in small pactches,ie. in house compounds etc., It is not intended to suggest that they replace paddy where paddy can be grown.

(b) Reasons why the tuber crops - sweet pototoes, and tapioca are not more extansively grown must be determined. probable patches are susceptibility of swett pototoes to pests and and diseas, the unsuitable duration of existing strains, and the non-availabilityof planting materials to small scale cultivators. The remedy for first two handicaps must be sought for by breeding methods. For distributing the highly perishable and bulky planting materials, an extensive organisation supplying all the taluks must be arranged by the Agricultural Department.

c. The possibilities of vegetable crops like colocasia and yams have been considered in the past. It is not advisable to discuss the vegetables individually. All of them are valuable supplementary food stuffs, each filling a particular soil, climatic, regional, social and market conditions. In this group, it would be desirable to stress the agricultural aspect, and demonstrate how successfully the vegetables can be grown when the soils have ample reserves of organic manure. The well irrigation

of gardens lands are being developed. The vital aspect of soil fertility as bestows by organic manures like compost, must be stressed again and again. The facilities for composing must be built up. Recoed yields must be raised from demonstration plots to emphasise and illustrate the methods advocated. The recent trend abroad is to show that be restoring soil fertility, the production from land is, enormously increased.

d. It is desirable to study the possiblity of developing a new species of potato suited to plains of south india. By musing new south American species of solanum, it is possible to do so, theoretically. If the expectation is realised, the potential benefit is great. This work is a long term work and must be treated apparately from the other lines of work.

/true copy/

V.n.M.

Compared by N. Raghavan.

SECTION No.1.

Measures to be adopted for increased production of alternate food crops.

Whatever be the methods adopted for increased production of subsidiary food crops, principally root cropp, in view of their perishable nature, it will be necessary, to resort to dehydration, atleast in the case of some crops, if their use over an extended period is to be made available to consumers. Dehydration will also result in much saving in freight and facilitate transport. Some work has been done in this section on the dehydration of sweet potato. Cutting into chips and sun drying has been found to work weal.

Section 2.

A critical review of the causes for the consistently low yields of the major food crops in India, as compared to other countries and measures necessary to improve them both quantitatively and qualitatively.

Fruits and vegetables have not attained the status of major food crops in India but yet, their importance in the context of the layer issue can hardly be ignored. An abudant supply of health giving fruits and vegetables of high quality is almost an insurance for the weal being of the country at all times and particularly so during the periods of food scarcity. Neither the yields nor the quality of these important accessory foods as produced at present, however, can-vie with the spectacular progresses such countries as the U.S. have been able to record. The reasons are not far to seed. Fruit and vegetable production in India is more of a pastime than a highly specialised industry which it ought to be indiscriminate introduction of kinds and varieties of fruits and vegetables, indifferent selection, and

of planting material, unstandardised cultural practices, unprestricted nursery and seed trades and unregulated marketing methods all claim their cumulative toll year after year making horticultural enterprises a mere daub on the agricultural map of India.

For any effective improvement of the existing of affairs, the need for comprehensive and organised research on all aspects of fruit and vegetable production and inhluding marketing is manifest. It is however, hardly appreciated even now that research must be programmed on the basis of the production potentials of any particular region or tract in respect of a given set of fruit or vegetable crops for the results to be felt in the food economy of the country. Unrestricted and unlicensed nursery trade both in the matter of supply of fruit plants and vegetable seed has to be forcibly brought to an end if vast areas are not to be encumbered pedigree seed multiplication in vegetables are long over due if rapid strides in increased production are to be ensured. The erstwhile wasteful and also frequently harmful unintelligent cultural practices have to be abandoned in favour of standardised methods which promote economy as well as production. Regulated markets which put into the hands of the growers a higher margin of profits which can be ploughed back into the industry for future prosperity are a vital necessity. Improved varieties, plant and seed material carefully selected to suit the tract or the season and with due regard to yield as well as quality, well kept and well nourished trees and plants, fruit and vegetable product picked or harvested at the optimum time and consigned, carefully packed, to regulated markets would, among others, constitute the basic means of augumenting production and improving the quality of horticultural field products.

SECTION II.

A critical review of the causes for the consistently low yields of the major foodcrops in India compared to other countries and measures necessary to improve them both quantitatively and qualitatively.

The problems of irrigated tracts are mostly is not exclusively those relating to the adequacy of measures be it green leaf, organic or chemical. Even here it is to be decided whether in the place of existing system of rationing out of the chemical fertilisers to all tracts on area basis the method of concentrating the manurial application to fertile zones may not be followed. The review of manurial trials done in India on almost all crops has sown that the increased yield obtained for a given dosage of Nitrogen is higher in fertile than in less fertile lands. Since the quantity of available fertilisers is limited, it should now be our endeavour to plan for maximum production by modifying the allocations in such a way as to divert them to the zones wherefrom highest response will be realised and leaving the other regions to rely on their own production of green leaf, composts, cattle and oake manures. For rice, a plan to produce and apply about 4,000#- lb of green leaf per acre on every acre of paddy in addition to other nitrogeneous fertilizers will step up the overall production.

In the case of all rainfall crops and a limited area of cereals irrigated from wells, changes in agronomy especially in items like time of planting, seed rates, pre pr post cultivation practices, and crop rotations will improve our present normal yield levels in the long run. The introduction of legumes receiving phosphates either as a pure crop or as a component of the mixture in rotational trials will maintain the soil fertility of Indian soils at a higher level of nitrogen status than without them. Intensive research on agronomy of every

crop will be necessary for achieving this objective, and it is also indispensable for a country which is oldest in agriculture and whose cultivators can ill afford to go in for costly imported fertilisers or farm implement flood and erosion control as aids to production or prevention of losses are subjects for state action and not that of the individual.

cotton specialist.

Subject II.

A critical review of the causes for the consistently low yields of the major foodcrops in India as compared to other countries and measures necessary to improve them, both quantitatively and qualitatively.

Notes: causes for the consistently low yields of rice in India, compared to other countries.

The causes for the present low yields of rice in India are due to the following factors:

1. The cultivation of rice under divorce soil fertility conditions and water facilities.

2. Extension of paddy cultivation in unsuitable localities.

3. Inadequacy of manure application.

Countries like Japan, Spain, Italy use artificials to the extent of 100 lbs Nitrogen and 50 to 60 lbs of P_2O_5. The average utilisation of artificial fertilisers per acre in India is less than 1/10 of those in other countries.

4. Want of facilities to give timely irrigation to the crop at the various critical stages of its growth Irrigational facilitities have to be developed to have

assured and protected water supply to the crop.

5. Feeble financial resources of the cultivator. As a matters stand today he cannot afford to incur any expenditure by way of improvements to his holdings.

6. Absentee Landlordship and Fragmentation of holdings. They preclude the adoption of certain measures on a cooperative basis to increase the yields.

7. Vital climatic and Ecological conditions. They are decidedly different in India from those in tother countries. Perhaps they are responsible to a greater degree for the low yield of paddy in India. In countries like spain, Italy and California the main rice growing season is restricted to summer months with long days, favourable for greater root development and production of larger amount of dry matter. In the tropics, the main growing season is the rainy season as only then sufficient quantity of water is available for the crop. In this season sunshine is limited both in duration and intensity. When conditions are favourable, i.e., when rice is irrigated with heavy manuring and grow in seasons not affected by constant rainy and wet weather, but having plenty of sunshine, yields of 6,000 lb as in the case of central Farm, Coimbatore, and 5000 lbs in Tambaraparani Valley over 50,000 acres have been recorded.

This takes us on to the question of devoting more area to rice growing during summer months providing adequate facilities for iggigation. The nearest approach we can think of in yield consideration in China where rice yields are about 50% higher and here the cultivators use all animal and human refuse as manure in addition to artificials.

8. Absence of pedigree seed of rice to serve all the rice area in the country. It is an admitted fact that pedigree seed alone can contribute towards 10 to 50% higher yield depending upon the variety.

The measures that would improve the yield are

~~those which will~~ counter act the above shortcomings. They are detailed hereunder in a very brief manner:-

1. No further extension of area until well protected irrigational facilities are provided:-

2. Improvement of tanks, wells, etc., and creation of assured irrigational facilities to meet the demands of the growing crop at its various critical stages.

3. Extended use of green manure by providing more facilities for irrigation.

4. Consolidation of holdings wit. the consent of the owners.

5. Improving the standard of living of the farmers. Subsidiary cottage industries like bee-keeping, poltry rearing etc, are to be improved with the state aid if needed.

6. Splitting up of large estimates and consolidation into compact blocks under the control of the individual cultivators.

7. Procution and supply of nitrogenous fertilizers at reasonable prices.

8. More storage facilties for storing south west monsoon rains for use during the retreating North east monsoon in cases of necessity. This would help also the autumn crops of rice which are generally high yielding, and ~~help also the puturna crops of rice which are generally high yielding, and~~

9. Production and maintenance of pedigree seed.

/true copy/

V.n.m.

3/6/ Compared by N. Rajaram.

SUBJECT II.

MEASURES NECESSARY TO IMPROVE THE FOOD CROPS IN INDIA.

The need for the Improvement of Millets in India by Plant Breeding methods to maximise production.

P. Krishna Rao,
Millet Specialist,
Madras.

INTRODUCTION: Millets are a group of small grained cereals which thrive in areas of low rainfall. They are food crops which are complementary to rice and between rice and Millets the people and the cattle of the Madras Province are fed. There are eight individual crops under the group name millets. The first four of them - jowar (Cholam) Bajra (Cumbu) Marua (Ragi) and Kanguni (Tenai) - are the more important millets and are grown throughout India, while the remaining four, Kedra (Varagu) Chama (Samai) Vari (Panivaragu) and Sawan (Kudiraivali) are less commonly cultivated. The botanical names of the eight millets are appended.

Special features of millets.

Millets are cultivated in both tropical and sub tropical countries. Most of them thrive in arid - and soils of low fertility. They are most crops in areas of low rainfall and usually prefer lands in which the rainfall varies from 20" to 40" In areas where the rainfall is higher they give place to rice.

Millets are mostly grown as crops in rainfed lands. 90% of jowar area, 87% of the Bajri-area, about 50% of the Ragi area and 85% of the Tenai are are grown with rainfed millets in Madras while only the remaining area is grown under irrigated millets. Millets are therefore, predominantly rainfed crops.

Millets are highlylocal in their behaviour. They are more conservative than the other crops being more susceptible to the conditions of soil and climate. A strain

evolved in a particular place has a possibility of only a limited area of spread. There are several local varieties of Millets in each tract and sub tract which have adapted themselves to the particular environment. The variety of one sub-tract does not suit the neighbouring tract. This point has to be fully realised in any breeding progamme for millets.

Though millets are grown throughout the tropical and subtropical regions, the uses they are put to in the various countries are differentfrom the way in which they are used in India. IN America and Africa they are mostly used as bird and stock feed and for extracting beaverages. The varieties developed in these countries are suited for these proposes. It is only in India that millets are mainly the food crops of human beings and the straw the feed for the cattle. The varieties grown in India are eminently suited for this purpose and they are entirely different from those developed in other countries for other purposes. The Indian varieties of millets are edible varieties and are wholesome food while the straw makes good fodder for cattle.

Area and production In India.

The estimated figures for the Indian region after partition are about 60 million acres with an annual production ofabout in of million tons of grain. In comparison with these figures rice occupied an area of 80 million acres and wheat 24 million acres. It will be seen from this that millets are an important group of food crops in India which merit attention in the attempts to obtain increased production.

How to increase the yields of millets:

The commonly known methods of increasing the yields of any crop are three (1)by irrigation, (2) manuring and (3) the use of improved strains of crops evolved plant breeding methods. As far as irrigation is concerned, it does not become

applicablete millets in increasing the yields because millets are grown mostly as rainfed crops in areas of low rainfall where irrigation water is scarce and they are also grown on higher lands and plateaus which are above the reach of flow irrigation. Whenever irrigation facilities are extended rice is always given preference over millets. Coming to the second point manuring in its application to millet areas it follows the same path as irrigation water. All the manure produced or obtained in the country always go to irrigated lands and wet lands because irrigation and manu go together. Full benefit can only be derived ~~when~~ when irrigation and manuring are conjointly applied, the one by itself cannot act beneficially without the other. Millets grown on rainfed lands are rarely manured. Now the only method that remains for improving the yield of millets in general is by the evolution of improved strains of millets through plant breeding. This is the most important point that is stressed in this paper. Improved strains of millets can give a 10% increase over local varieties.

Knowing that plant breeding is the only method of increasing the yields of millets in general, the next consideration is how to achieve this object. The special features of millets which ~~must~~ have [illegible] paragraphs determine the methods that have to be employed in plant breeding of millets to evolve improved strains. The experience that has been gained in the breeding of millets in Madras for the past 25 years has shown the way in which this problem could be tackled with a view to obtain the maximum benefit and the knowledge gained is briefly given below:

The rainfall and the seasonal conditions in the Madras Presidency vary a that delt in the several millet growing areas. Different varieties in each established themselves in different soil.- Climatic zones i.e. the jowar of the Vizakhapatnam district varies very greatly from that of the Guntur District which is again

different from the Kurnool and Bellary areas. In this way through ages of cultivation varieties suited to each individual soil climatic zone have come to be established. There are hundreds of such varieties in each of the millets. A variety from one soil climatic zone will not thrive in another zone. Under these circumstances to obtain the maximum benefit from plant breeding on millets, the improvement of each major vareity in each millet has to be tackled and a wide decentralisation of plant breeding work has become necessary. A very large number of substations consisting of small units of workers have to be located in each of these major areas, and intensive work in each substation will have to be taken up. Realising this important aspect in the breeding of millets the government of Madras have gradually expanded the work in the districts and now, out station work is being carried on in 15 centres scattered over the whole presidency, to deal with each sub-tract and obtain the maximum production of each of these sub tracts, the total of which goes to increase the production of millets in the presidency.

Millets are grown to a large extent in the other provinces and states of India, Mysore, Bombay, Hydrabad, Central Provinces, United Provinces, and the Punjab. Work on the improvement of millets in these regions is also in progress either on a large or a small scale. The object of this paper is to invite the attention of these provinces to the necessity of decentralisation of breeding work on millets and a ratification of the same into individual sub tracts as in Madras, so that this aspect of the question may be examined in these several provinces with a view to apply the same, if found necessary.

SUMMARY.

From the experience of plant breeding work on millets in Madras it has been found that the only way by which increa production in millets which are usually rainfed crops can be obtained is by adopting plant breeding methods with a view to evolve high yielding strains for cultivation. Owing to certain peculiarities in Millets the method by which this can be achieved is by decentralisation of plant breeding work and a ramification of the same in the various sub-tracts in the provinces.

P. Krishna Rao,
Millet. Specialist.

Common name	Botanical name	Tamil	Telugu	Hindustani.
Serghum.	Serghum spices	cholam	Jonna	Jowar
Pearl Millet	Pennisatum typheides, S&H	cumbu	sajja	Bajra
Finger Millet	Eleusine Ceracan, Gaertn.	Ragi Kelvaragu	Ragulu	Ragi
Fox-tainMillet.	Setaria italica Beavu	Tenai	Korralu	Kangeene
Kodo Millet.	Paspalum Scrobiculatum L.	Varagu.	Arikalu	Kodra
Lettle Millet.	Panicum millare, Lam	Sammipani.	Samalu.	Shavan
Common Millet	Panicum miliaceum L.	varagu	varigalu	Barri
Barnyad Millet.	Echinochloa frumentacea, Link.	Kudiraivali	Oodalu	Sanwani

P. KRISHNA RAO,
Millet specialist.

SUBJECT II.

CRITICAL REVIEW OF THE CAUSES FOR THE CONSISTENTLY LOW YIELDS OF THE MAJOR FOOD CROPS IN INDIA AND MEASURES NECESSARY TO IMPROVE QUALITY AND QUANTITY.

The principal causes responsible for the low yields of the major food crops in this Province are inadequate attention to manuring, the inertia, and the general poverty of the ryots and the system of land tenure, the tiller of the soil being in many cases not the owner of the land and therefore not much interest in maintaining or improving the fertility of the soil which is absolutely necessary for increased food production. In pre-war years ryots with small holdings could not afford the necessary expenditure on manures. This position exists even now, although, with increased prices for the primary commodities ryots are better off than before. Fertilisers are, however, in short supply and even those willing to afford the necessary expenditure on manures are unable to get their requirements and sometimes the supplies are available too late in the season. Ryots with big holdings are not making as efficient use of thier lands as they should. Many of them are satisfied with what they get with minimum of expense and effort and instances are not lacking where large areas are followed to li-

Field experiments at the various Agricultural Research Stations have amply demenstrated that with an assured water supply, considerably higher yields could be obtained by judicious manuring. This has also been the experience of many enlightened ryots. The available sup plies of cattle manure, even if the prevention of its use as fuel could be brought about, will hardly suffice to meet the needs of a fraction of the area under cultivation. The preparation on an extensive scale of compost out of rural and urban waste for which

an intensive propaganda is being carried on, may result in some improvement in the situation but, without the use of artificials, will not succeed in achieving the object aimed at. It must be remembered that these are bulky organic manures of relatively low availability compared to artificials. The importance of bulky organic manures for improving the physical conditions in both light and heavy soils and promoting the activity of microorganisms is not disputed. Practical experience all over the world points to the fact that crop production could be considerably stepped up by the judicious use of artificials and the view of the Howard school that artificials are detrimental to the soil is questionable and not based on any reliable evidence. Further it has to be pointed out that under tropical conditions organic matter gets oxidised very quickly and an improvement in the organic matter status of tropical soils is very difficult to achieve. The results of the Permanent Green Manure Experiments at the Agriculture Research station, Anakapalle and elsewhere and of the permanent Manurial plots at Coimabtore point unmistakably to this conclusion. At Coimbatore the plot which has been receiving cattle manure at 5 tons per acre every year for over forty years, since the inception of the studies in 1908, has shown practically no improvement in organic matter status. The analysis of the yield date up to date has revealed that, generally speaking, cattle manure has not proved definitely superior to complete mineral manure (N+K+P) or even N.P. It is therefore evident that if the country is to be self-sufficient with regard the fertiliser production in the country, especially nitrogenous, will have to be subscribing to the doctrine of the Howard School espoused with such religious

fervour by some on the basis of scanty and questionable evidence will not take us far in the fight on the food front. Increased use of artificials will not only step up food production but will also result in the addition of more plant residues to the soil and the maintenance of fertility and humus content.

Fertilisers give the best results under conditions of assured water supply and their benefit for dry crops naturally depends on favourable seasonal conditions. The fertiliser requirements of the Province for the areas under irrigated food crops as taken from the Season and Crop Report for 1947-48 and rounded to the nearest thousand acreas are as follows:

Paddy:	8,336,000
Cholam:	459,000
Cumbu	312,000
Ragi	803,000
Maize, Korra & minor millets	155,000
Total.	10,065,000

The areas under some of the so called cash crops which might as well be put under food crops are:

Sugarcane	263,000
Plantains.	169,000
Sweet potato & fruits.	34,000
Vegetables.	264,000
Total.	730,000

Nitrogen is the plant food constituent which the soils are very greatly in need of and to which crops readily respond. Certain areas are in need of phosphates

and in the interests of maintenance of soil fertility and quality in crops, phosphatic fertilisers also have to be used, thoughnot to the same extent as N. Except in the case of sandy or highly leached soils, the lands of this province are sufficiently well supplied with potash to meet the needs of the cereals crops.

Manurial experiments in this Province have shown that increased yields of cereals are obtained with increasing doses of N, the optimum being round about 45-50 lbs of N. per acre. Putting the requirements of nitrogenous fertilisers at the modest figure of 30 lbs N. per acre, the fertliser needs in respect of 11 million acres of irrigated cereal and food crops are 147,300 tons of combined N or expressed as sulphate of ammonia are available for food crops in 1949-50. If the requirments of cash and other crops are taken into account, the appalling shortage of and the need to set up more factories of the Sindhri type and step up the production of artificials will be evident.

Taking rice, which is the staple food crop of the majority of people in this province, acre yields of nearly 4000 to 5000 lbs have been obtained in the Tamabaraparani valley and in parts of Coimbatore and also in the deltaic areas of Tanjore and Godavari. Favourable soil and climatic considerations apart, a glance at the statistics regarding crop yields and consumption of artificials in other countries at once reveals that the higher the consumption, the higher the average crop yields. In this connection it is interesting to note ~~note~~ that the small country of Japan where the average paddy yield is 3,000 lbs per acre used in prewar days 4 million tons of fertilisers, mainly sulphate of ammonia, and superphosphate, almost wholly on her 16 million acres of arable ~~xx~~ land. The greater proportion of the artificials sulphate of ammonia, was used for manuring paddy.

As regards improvement in quality, the first consideration should be to produce enough food to meet the full needs so that nobody has to starve. Considerations of quality can well afford to wait till sufficient improvement in respect of quantity has been achieved. Nitrogeneous and phosphatic fertilisers are known to improve the quality in cereals. As regards the improvement in quality of cereals nutritive value, vitamin content etc. brought about by the use of organic manures, of which the school of Howard and Viswanath were the chief exponents the matter is still the subject of much controversy and the evidence adduced has not been sufficiently convincing or corroborated elsewhere. When an ample and sufficiently varied diet including milk products frutis and vegetables is taken there appears to be little need to bother about vitamins and minerals. However, that be it stands to reason that great use of manures and fertilisers for greater yields would ISPOFACTO improve the nutritive value of the crop products.

An assured supply of water by way of extension of irrigation facilities, tapping of subsoil water supplied, steepingup the production of and making available to [illegible] their requirements of artificials and [illegible] intensive cultivation of lands where the conditions are favourable, the reform of the land tensure system so that the tiller of the soil owns the land and will be interested in its permanent improvement, the shaking off of inertia through education and propaganda. How, even under unfavourable conditions as regards soil and irrigation water much could be accomplished and good crops secured by good soil management and judicious manuring could very well be seen by visiting some of the garden lands in Coimbatore especially round about the Agricultural College. The ryots are very hardworking and are able to take three very good crops off the hand in one year.

Compared by V. Rohavan.

P.V.R. Karunakar,
Govt. Agricl. Chemist.

SUBJECT NO. XII.

MEASURES TO CHECK WEEDS IN THE FIELDS OF FOOD CROPS WITH A VIEW TO SAVE THE LOSS CAUSED BY THEM WITH PARTICULAR REFERENCE TO CHEMICAL METHODS EMPLOYED IN OTHER COUNTRIES FOR THIS PURPOSE.

In orchard culture, the control of weeds is associated, with certain peculiar features. The frequent deep intercultures that are done in fields grown to seasonal crops for this purpose cannot safely be copied in orchards without detriment to the vast foraging fibrous roots of fruit trees. The use of chemical methods, to kill weeds is therefore of particular interest to the fruit grower. The employment of plant poisons such as sodium chlorate and related compunds arsenicals, sulphuric acid, the recently developed class of coumpounds such as 'Sinox' and 'Denoc' belenging to the D.N.O.C. group (d-nitro-orthocresylates), power kerosene, and when used in excess, materials such as salt, borax, sulhpate of ammonia and sulphate of iron and and also a large class of compounds derived from oils and tars has been pressed into service for weed eradication. But these substances do not occur naturally within the plant as do some types of hormones, but are destructive of plant life and often of animal life also, and as such are useful only under expert management and in careful hands. It is doubtful whether, therefore, the use of chemicals, for the purpose is as yet safe enough under existing conditions in India. In contrast the plant hormone type of weed killer is non-poisoneus to animals, except, possible in great excess and may therefore prove to be the most useful among these various weedicides.

The two types of hormone weed killers are the 2-4D type represented among others by "Weedone" and "Dee-cee-pee" and the M.C. type which is the active principle products such

'Methoxone' and 'Agroxone" Certain preliminary trials with Methoxone at the Fruit Stations in Madras province have given indications of their effectiveness in killing most weeds of the dicot type. Extensive trials with the hormone products therefore seem justified. In their application the following points deserve emphasis (1) they are particularly effective on young plants which are making vigorous growth.
(2) narrow leaved plants are more resistant than broad leaved ones;
(3) weedy plants with a low ratio of leaf area tototal weight tend to be resistant.
(4) plants with extensive or fleshy rootsystem are often resistant and may required repeated sprayings before they are killed, and
(5) perennial weeds are normally more resistant than annual weeds.

There is also extent literature on hormone weedkillers which seems to suggest that the use of a spray of 1 lb. of ammonium nitrate to 5 gallons of water applied to the plants before spraying with a hormone weed killer gives more effective results than the weed killer applied alone.

V. Narasinga Rao,
Asst. Fruit Specialist.

v.n.m.

Compared by N. Raghavan
R. Rohtgi

SUBJECT III.

MEASURES TO CHECK WEEDS IN THE FIELDS OF FOOD CROPS WITH A VIEW TO HAVE THE LOSS CAUSED BY THEM WITH PARTICULAR REFERENCE TO CHEMICAL METHODS EMPLOYED IN OTHER COUNTRIES FOR THIS PURPOSE.

With the discovery in 1940 by slade, Templeman and Sexton in England that certain chemicals known as plant hormones, could be used as selective herbicidies (i.e. for killing off certain plants while leavingothers unharmed) a wide field has been opened up for a more effective and less expensive way of controlling weeds in cultivated lands. Dicotyledoneus plants are in general readily destroyed by very low concentrations (1-2 lbs per acre in 100 gallons of water) of these chemicals, whereas monocotyledeneus plants wherein come all the cereal food crops, are unaffected by the same concentrations. This feature makes these new chimicals very useful for keeping down weeds even in the midst of a standing crop of cereals.

A great deal of work has already been done in other countries, on the action of these selective herbicides but in India very little attention seems to have been paid so far to this subject, except in the case of water hyacinth in Bengal (iltra 1948) and on a few other weeds under green house conditions at Coimbatore (Thomas and Sreenivasan 1949). There is thus a very urgent need to explore the potentialities of chemical herebicides against the major weeds of food crops in out province.

A three year research scheme aimed at finding out which of the several chemical weed killers now available would prove most effective under the prevailing local conditions in the Madras presidency has been submitted for consideration by the Indian Council of Agricultural Research in March 1949.

It is proposed to conduct studies on tow main lines 1) on the fundamental aspects, for testing the effect of a number of chemicals on a large variety of weeds grown under controlled greenhouse conditions and

2) on the practical aspect where a limited number of the most troublesome weeds like hariala (Cyrodon dacylon) nutgrass (Cypetus rotuddra) Saranai (Trianthema portula castrum), Ammonia baccifera in Wetlands, Aristopochia bracteata in black soils and spurrey Spergula ariensis) in potato areas in the Nilgiris, would be treated with one or tow of the most effective herebicidal compunds at selected stations of the province.

For the preliminary fundamental studies at Coimbatore the following chemicals are to be tried:-

1. Methoxone both in liquid &x form and as dust.
2. Agroxone do
3. Weedone do
4. Pure 2 4 Dichlorophenoxyacetic acid and its derivaties.
5. DNOC - Dinitorortho cresol and its derivatives.
6. 2,4,5 - trichloro phenoxy acetic acid.

A wide range of concentrations are proposed to be tried. both singly and in conjuction with certain adjuvants like oil emulsion and "concentrate 40" that are claimed to increase the herebicidal power. The method and frequency of applications would also be varied to determine the most effective and economical way of utilising the chmicals for each type of weed at different stages of growth. Side by side with these tests, the common food crops like paddy (Rice) cholam, Ragi and potatoes will be studies both as pure cropsand in mixtures with the appropriate weeds to determine the relative responses of crops and weeds and decide upon the safe effective

concentration of the herbicidal chemicals.

Studies would also be made on the persistence of toxicity of these chemicals in different soils under wet land dry conditions in relation to temperature variations, shading effects in light and in darkness to find out how soon seeds of crop plants could be sown with safety after heavy dosages of the herbicides.

P.D. Karunakar,
Government Agricultural Chemist.

SUBJECT 3.

The loss caused by weeds is manifold and they compete with the food crops taking away the moisture of the soil and reducing its fertility. From early times several methods to check and eradicate the weeds were being evolved and the methods commonly employed, about half a century back were by means of hand pulling, hoeing and ploughing with a large amount of manual labour. With the progress and advancement of mechanised agriculture, measures which will take less of expenditure were thought of. Using chemicals as weed killers was accidentally discovered in France by a grape grower while he was spraying bordeaux mixture on his vines. He found that some plants were affected by the spray. Just then a French Scientist by name Bennet began experimenting with chemicals with some success.

There were two kinds of weed killers, selective and non selective the latter destroying weeds and crops indiscriminately. So selective weed killer which could eradicate the weeds alone was preferred. Till recently these weedicides were affecting the plants at the place of application and these weedicides could destroy only annual plants which possess shallow root system. But some salts of arsenic and sodium though of non-selective

nature were able to kill the weeds completely by their translocativepower but these chemicals became unpopular as some of them were found to be very poisonous and corrosive to man and cattle, while some left harmful effects on the soils. Sulphuric acid was also tried with great success but much difficulty was experienced in handling the concentrated acid.

In 1938, in France, Dinitro-ortho-cresol was noticed to be very effective and became popular in the form of pastes, powders, and emulsions. But DNOC was a contact weed killer and could be used on perennial weeds.

A new class of weed killers were discovered during the second world war which were actually growth promoting harmones. By using these harmones an over growth was induced in the plant which ultimately resulted in the death of the plants. These substances had practically no effect on cereal crops and grasses. So researches to find more active substances were conducted in England and America. All these harmness were salts of 2-4D and ranking among them are Phenoxyle, Methoxone and Agroxone. The advantages with the harmone weed killers were that they were not only not affecting the point of applic but were able to kill the entire plants including the roots. Most of these harmones were selective weed killers and they were absolutely non poisonous and non injurious to man and animal. These were in different concentrations depending on the nature of the weeds. It was found in England America, and India that 10% Methoxone gave complete eradication of variety of weeds in fields. In general the harmones were a well suited to control in cereal crops. Series of trials in India reveal that spraying x given Shapes very effective. These chemicals are applied as Spray as dust each one having its advantages and disadvantages. In India spraying is more popular.

With the trials carried on in India, and outside it is confirmed that harmone method of killing weeds is technically the most sound one at the present moment.

CHANDRASEKHARAN.

Compared by N. Raghavan

SUBJECT 4

MEASURES TO CHECK WEEDS IN THE FIELDS OF FOOD CROPS WITH A VEIW TO SAVE THE LOSS CAUSED BY THEM WITH PARTICULAR REFERENCE TO CHEMICAL METHODS EMPLOYED IN OTHER COUNTRIES FOR THIS PURPOSE.

Most of the weedicides and herbicides are reported to be selective in character and ineffective on monocots. They may prove useful in controlling dicotyledenous annual weeds found in cereal food crops if sprays of suitable chemicals in required concentration and time intervals are applied, but t will not control Kans, Pariali or nut grass which constitute, the most troublesome and dangerous weeds in India. The weedicides will also prove useful in putting down effectively most dicot weeds on bunds and fallow areas if regularly applied if off seasons especially before their seeding time. This measure will check the sources of propagation and their subsequent dispersal into the fields.

R. Balasubramanian,
cotton specialist.

SUBJECTS (3) & (4)

Notes for (3)

This is not a series problem so far as paddy is concerned.

(3) Measures to check weeds in the fields of food crops with a veiw to save the loss caused by them with particular reference to chemical methods employed in other countries for this purpose.

(4) The need for establishment of seed testing stations in India for maintaining the purity of the seed materials and its freedom from seed borne organisms, seed weed contents, etc., as a measure to increase crop yields.

Notes: If these stations are opened, they must be

suituated in every one of the major rice zones in the country. Each zone has got its own peculiarities in rice cultivation and as such suitable strains have been or are being evolved to tackle successfully the local conditions. Zonal stations must confine their activities to the zonal needs only if desired objects are to be ~~are to be~~ achieved.

P. Balasubramanian,
Agricultural Meterologist.

SUBJECT

NEED FOR ESTABLISHING SEED TESTING STATIONS.

Seed: A Valuable basis for crop improvement.....

Seeds from the important basis for crop improvement. Whatever be the cultural methods and the environmental conditions, the quality of the seed is most important and fundamental factor in increasing crop yields. While the various crop specialists strive to get types or strains for improved quality and yield suitable for certain climatic and soil conditions if there are no organisations to help them in avoiding some of the hazards of maintaining the purity of strains etc., the progress cannot be on the expect right lines.

Seed testing in Agriculture.

Seed testing has to be developed to be of aid in agriculture by furnishing all possible information about seeds. Many different types of information as the weed seeds, viability speical treatments necessary medium growth etc, may be desired by the agriculturist under different circumstances. To cater efficiently to the needs of agriculturist and at the same time effectively bring in crop improvement, seed testing has to be organised on scientific lines as has been going on in the western countries for a long period now.

PUBLICATIONS TO BE TAKEN UP BY SEED TESTING STATIONS.

a) Purity analysis.

(1) Purity to species,

(2) Purity to strain or type

b) Viability tests.

c) Contamination by weed seeds, and other physical impurities.

d) Determination of seed brone diseases.

e) Storage trials and their effect on viability.

f) Other miscellaneous items.

1) Optimum conditions for germination.

2) Dormancy

3) Special treatments for special types of seeds.

4) Methods of analysis and germination tests, computation of data etc.

The most important of all, to organise and issue registered seeds and certified seeds to the agriculturist and thereby increasing crop production in which the help of legislation is very necessary.

CHNADRASEKHAREN,
GOVT. Lecturing & Systematic
Botanist.

SUBJECT:4.

THE NEED FOR ESTABLISHMENT of seed testing stations IN INDIA FOR MAINTAINING THE PURITY OF THE SEED MATERIAL AND ITS FREEDOM FROM SEED BORNE ORGANISMS, WEEDSEED CONTENTS, ETC. AS A MEASURE TO INCREASE CROP YIELDS.

This subject is of very great importance in the vegetable growing industry. Fairly extensive trials over two years at the Pomological station, Coonoor have served to lay emphasis on the fact that much of the vegetable seed distributed by seedsman is highly impure resulting in appreciable economic loss to the growers. State controlled

seed growing enterprises such as the one at Quetta now in Pakistan which was being sponsored by the Indian Council of Agricultural Research, seem to be clearly necessary if increased crop yields are to be ensured. It must be mentioned, however, that seed borne organisms or weed seed contents have fortunately not been of any major consequence in the existing set up of vegetable seed supplies. Considering that perhaps about a dozen extensive seed farms associated with seed testing stations, distributed in typical areas of the Indian Union, would suffice to meet the entire requirements of vegetable seeds within the Union, there is a great deal to be said for the idea that the entire business may be run exclusively under state auspices. This would involve no great outlay but at the same time would assure of the desired results in the quickest possible time.

U. Narasinga Rao.
Asst. Fruit Specialist.

SUBJECT 4.

The NEED FOR ESTABLISHMENT OF SEED TESTING STATIONS IN INDIA FOR MAINTAINING THE PURITY OF SEED MATERIAL AND ITS FREEDOM FROM SEED ORGANISMS? SWEED WEED CONTENTS ETC. AS A MEASURE TO INCREASE CROP YIELDS.

No separate seed testing stations are needed for the purposes indicated, if the existing provincial organisations for seed multiplication are equipped with facilities for such items of work and compelled to certify their pureseeds offered for sale to cultivators. Most provinces have seed production officers for the Principal crops located in major regions and it must be made incumbent on them to guarantee viability, purity, foreign matter and freedom from pests and diseases. The officers in charge of the production are technically qualified to undertake these items and if necessary pretreatment of seeds intended for sowing by special fungicides and fumigants may be insisted upon as a routine measure. An agricultural seeds act compelling the

cultivation of approved varieties, the sale of improved strains by licensed agencies, the control over the production of pedigree seeds and the certification of the varieties from sewing to processing stages after adequate and peridocial supervision will be indispensable if lasting effects are to be ensured.

R. Balasubramian,
Cotton speiokalist.

SECTION V

THE SCOPE AND MANNER OF UTILISATION OF CHEMICAL FERTILISERS AND COMPOSTS.

To make the best use of fertilisers, experiments of fertiliser placement will have to be undertaken. A beginning has been made in this province on potatoes at the Agricultural Research Station, Nanjanad and its extension to include other crops is desirable. Studies on presoaking of seeds in phosphate and other solutions promise to provide a short cut to step up crop production. Preliminary experiments in pot cultures with paddy have given very encouraging results. Field trials are in progress.

P.D. KARUNAKAR.
Govt. Agri. Chemist.

SUBJECT 5.

THE SCOPE AND MANNER OF UTILISATION OF CHEMICAL FERTILISERS AND COMPOST.

NOTES: (i) Compost: Application of composts in paddy will result in noticeable increase in yield only when it is in very heavy doses. In garden crops, results will be more spectacular even in smaller doses. So it is not economical to resort to compost manuring so far as paddy is concerned.

(ii)(a) ARTIFICIALS. These are the most efficacious and experiment in every one of the Agricultural Research Stations have shown the efficacy of nitrogenous fertiliser, specially Ammonium Sulphate. Its application is extended to all types of soils.

(b) Experimental data do not confirm that C alicium application is bad to crop. But it willbe advisable to use it always with a basal dressing of green leaves Particularly in the case of acidic soils lime application once, in five years will certainly be advantageous.

(c) The crop does not respond to the application of Potash (K2O) The reason for this observation may be due to the fact that our soils are already rich in Potash.

(d) In the case of P2O the results are of conflicting nature. Particularly on light soils application of 30 to 40 lb of P 2O5 over a basal dressing 2000 lbs. of green leaf has always resulted in 15 to 20 per cent high k yield.

(e) C akes are now a days in great demand as cattle feed and even as human and after proper processing.

(f) Green leaf and green manures are found to be the best. If suitable facilities exist, green manure may be grown in situ when fields are fallow during the intervening period of two successive crops of paddy. Green leaves can even be concerted into hay when they are available in plenty for subsequent application to paddy crop under good water facilities.

R. Balasubramaina,
Agricultural Meteorologist.

v.n.m.

Compared by N. Raghavan.

SUBJECT 5.

THE SCOPE AND MANNER OF UTILISATION OF CHEMICAL FERTILISERS AND COMPOST.

In so far as fruit and vegetable crops are concerned it has to be admitted that at present knowledge on their exact manurial requirements under Indian conditions is fragmentary and imperfect. The comparative efficacy of chemical fertilisers and organic manures and the particular uses of compost in any regular fertiliser practice in orchards and vegetable plots, in relation to yields and quality have all yet to determined and assessed. Foreign experience in these matters can hardly prove anything more than merely indicative of certain responses that the crops in India might be able to register but it cannot be a guide on that account in evolving any set ~~formulate~~ formulae to suit the latter.

SD. V. Narasinga Rao,
Assistant Fruit Specialist.

SUBJECT 6.

THE BEST POSSIBLE METHOD FOR EXTENSION AND DEVELOPMENT WORK IN AGRICULTURE IN INDIA FOR INCREASING AGRICULTURAL PRODUCTION.

Notes: The chief occupation for a major portion of the Indian population is Agriculture. In spite of this fact agriculture is not in its stage of perfection. It presents ample scope for improvement.

(i) More "Demonstration Farms" are to be opened at the rate of at least one for each taluk, preferably at Taluk headquarters.

(ii) In spite of weather being such an important factor for crop growth the present day knowledge of the influenceof weather on crop growth is rather meagre. This new branch of science, namely Agricultural Meterology may with advantage be developed. Through an efficient and cheap organisation the results of research in this new science may be taken to the

doors of the ryots.

(iii) The cooperation of non-official bodies like "Better Farming Societies" may be enlisted with the Government organisation to have efficient and quick transformation of results of agricultural research in general farming practices. Such deserving organisations may have the kind support of the Government.

(iv) An aptitude for agriculture is to be developed in our young generation. In fact, agriculture may be taught a compulsory subject to students from first form onwards. Teaching agricultural subjects in all schools and colleges will certainly have a very good effect in its general improvement.

(v) "From food are born all beings in this world and by food do they live, and after death, they become food again for other beings". This is the view expressed by His Excellency Sri C. Rajagopalachariar, in his message to the Nation on the occasion of the second anniversary of Ihdependence. Faithful realisation of his observation and healthy cooperation of both the State and the Public will certainly go a long way in the improvement of Agriculture, the main, and noble profession in India.

M.B.V. Narasinga Rao,
Paddy specialist.

SUBJECT 6.

THE BEST POSSIBLE METHOD FOR EXTENSION AND DEVELOPMENT WORK IN AGRICULTURE IN INDIA FOR INCREASING AGRICULTURAL PRODUCTION.

In any serious endeavour to promote the extension and development of horticulture, the prime need is to declare fruits and vegetables as essential foods in view of their nutritional and economic importance. Raised to this status, the needs of these crops in terms of priorities in facilities either for research, development or extension are bound to be met more fully than at present.

It would then not mean merely the production or consumption of health promoting foods at a lisurely pace but would be more a question of how best to produce them cheaply, abudnantly and speedily.

Research is the pivot on which the development of well organised horticultural industry depends. Whether it be to decide the kinds and varieties of fruits that are best suited for any region or it be to determine the optimum cultural and manural practices, research is indispensable. Full fledged Research stations established on a regional basis with due consideration of the importance of the crops to be worked upon to the region and to the country as a whole, would a long way to remedy the imperfect or incomplete knowledge we have at present on most such subjects. The establishment of model orchards and demonstration farms coulpe with the building up of a nucleus of personnel with specialised qualifications in horticulturewould be the most effective means of translating the results of research to the practical Agriculturist. A system of licensing the nursery trade is imperative if the edifice of horticultural development is to be built on secure foundations. A vigrous and realistic approach to the packing, transporting and marketing problems of the fruit and vegetable growers would prove a potent means of squeezingout the packets of gluts and spoilages. The provision of regrigeration facilities and the conversion of excesses into preserved products palatable to the distinctive Indian tastes and fancies would stimulate both production and extension.

V. Narasinga Rao,
Asst. Fruit Specialist.

Compared by N. Rajaram
R. Mohd Hanifulla

SUBJECT XIV. 6

"THE BEST POSSIBLE METHOD FOR EXTENSION AND DEVELOPMENT WORK IN AGRICULTURE IN INDIA FOR INCREASING AGRICULTURAL PRODUCTION.

Improved strains in Groundnut, Gingelly and Caster, which are capable of giving 20 to 30 percent ~~pm~~ increased yield over the ryots varieties, have been evolved by the Oilseeds section. Though the seeds of these strains have been under distributed by the department for fairly a long time, their spread in the important where they are largely cultivated had not been satisfactory. They ryots are convinced of the superiority of these improved strains but they are handicapped to grow them in large areas due to want of sufficient quantity of seeds. At present there is no special agency in the department to look to the rapid multiplicationand distribution of the improved seeds. The propaganda wing of the department has to attend to so many itemsof work in the districts that it is unable to devote adequate attention for seed multiplication and distribution work. Therefore it is necessary that there should be a separate organisation within the department manned by experienced people dealing with particular crops to attend to this important item of extension and development work. This will also go a long way in increasing the Production of oilseeds in the province.

C.G. Narayanan,
Oilseeds Specialist.

OFFICE OF THE REGISTRAR OF

COOPERATIVE SOCIETY, CHEPAUK, MADRAS.

Dated 14-12-1949.

D.O. No. 160552/49.T.

Dear Sri Kuttalalingam Pillai,

Sub: AGRICULTURE & IndianCouncil of Agricultural Research - Eighth meeting of the crops and soils wing of the Board of Agricultur and Animal husbandry in India - copy of note if any.

Ref: D.O. No. 56973/K/49/4 dated 12-12-1949 Food and Agriculture Department from Sri M: Sargunan.

* * * * * * * * * * * * * * * * * *

I have submitted my reply in my letter R.C. 160552/49 t. dated 13-12-1949, a copy of which is enclosed for ready reference.

To

Sri M.A. Kuttalalingam Pillai, M.A.
Secretary to Government,
Food & Agriculture Department,
Fort St. George.

Copy of letter No. R.C. 160552/49-T d/13-12-49 from the Registrar of Cooperative Societies, Chepauk, Madras to the Secretary to Government, Food and Agriculture Deppt. Madras.

Sub: AGRICULTURE & Indian Council of Agricultural Research Eighth meeting of the crops and soils wing of the Board of Agriculture and Animal Husbandry in India.

Ref: Government memo. No. 56973-k/49-1 Food and Agriculture dated 26--11-1949 and post copy of Telephonic message dated 10-12-1949.

With reference to para 3 of the Government memo cited I submit that I have no special note to be submitted in the matter.

/true copy/

AGRICULTURE DEPARTMENT.

From

Sri R.M. Sundaram, I.C..S.,

Director of Agriculture

Chepauk, Madras.

To

The Secretary to Government,

Food & Agriculture Department

Fort. St. George, Madras.

No.R.O.C. Dl.882/49 dated 16-12-1949.

Sir,

Sub: Indian Council of Agricultural Research - 8th meeting of the crops and soils wing of the Board of Agricultural and Animal Husbandry - Deputation of delegates.

Ref: Government memo. 56975K/49-1 dated 26-11-1949.

- - - - - - -

I suggest the following persons in order of preference to represent the cooperative movement on the crops and soils wing the Board.

1. Sri B. Ramachandra Reddi, Buchireddipalam.
2. Sri V.C. Palanisami Gowndar, Coimbatore.
3. Sri C.T. Tadulinga Mudaliar, Madras.
4. Sri L.N. Parameswaram Pillai, Kumbakonam.

/true copy/

Compared by N. Raghavan.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH.

'P' Block, Risina Road, New Delhi.

No. F. 56 (1)/49-A, dated the 29th December 1949.

From

The Secretary.

To

All Provincial Government and C onstituent
Indian States.

Subject:- Eighth meeting of the crop and soils
wing of the Board of Agriculture
and Animal Husbandry in India.

- - - -

Sir,

I am directed t> invite a reference to this effice letter of even no. dated the 19th novembor, 1949, and to request that a list of your nominees for the next meeting of the Crops and Soils ~~xxx~~ Wing may be sent to this office at a very early date, if not already done so. The officers concerned may be asked to submit notes on the items of agenda so as to reach this office not later than the 15th January 1950.

2. It has since been decided to hold the next meeting of the Board at Patiala sometime in March next. The exact dateswill be intimated later.

/true copy/

Development department.

Food and agriculture department No. in continuation of Development No. 115389 E/49-1 dated 23-11-1949.

Dev. No. 125749 E/49-1 d/30-12-1949.

Compared by N. Raghavan.

Letter No. 56973K/49-9-d/4--1--50.

Food and Agriculture

To

The Secretary,

Indian Council of Agricultural Research,

'P' Block, Raisina Road, New Delhi.

Sub: AGRICULTURE - Indian C ouncil of Agricultural Research - Eighth meeting of the crop and Soils wing of the Board of Agriculture and Animal Husbandry in India. Delegates from Madras.

Ref: Your letter No. F. 58(1)/49-A d/29-12-1949.

- - - - - -

I am directed to state that the matter is under correspondence with the Director of Agriculture, Madras and that the names of delegates who will be deputed to attend the above meeting will be furnished to the council as soon as possible.

2. Copies of notes prepared by officers of the Agricultural department of this government on the subjects included in the agenda have already been forwarded, to the council in this government's letter No. 57973 K/49-6 dated 21-12-1949. There are no more notes to be sent.

/true copy/

V.N.M.

Compared by N. Raghavan.

55

Food and Agriculture.

Memorandum No. 56973 K/49-10 dated 4-1-50

Sub: AGRICULTURE - Indian Council of Agricultural Research - Eighth meeting of the Crops and soils wing of the Board of Agriculture and Animal Husbandry in India - Deputation of Delegates from Madras.

Ref: (i) From the Director of Agriculture letter no. 882/49 dated 13--12--1949.

(ii) From the Director of Agriculture letter No. 882/49 dated 16-12-1949.

-x-x-x-x-x-x-

The Director of Agriculture is informed that the Government have decided to depute only three officers of the Agricultural department for the ensuing meeting of the Crops and soils wing of the Board of Agriculture in India. The Director is requested to select the three officers to be deputed and report to government.

2. With reference to his letter second cited, the Director of Agriculture is informed that the government do not propose to recommend any one to represent the cooperative movement, as none of the subjects included in the agenda for the ensuing meeting have any direct bearing on the cooperative movement.

3. The Director of Agriculture is also informed that the Indian Council Agricultural Research have since intimated that the meeting of the crops and soils wing of the Board will be held at Patiala some time in March, 1950 and that the exact date of the meeting will be communicated later.

/ture copy/

v.n.m.

Compared by N. Raghavan.

Copy of letter No. D.1. 662/49 dated 7-1--50, from Sri R.M. Sundaram, I.C.S., Director of Agriculture, Chepauk Madras to the Secretary to the Government, Foods and Agriculture Department, Madras.

Sub: Indian Council of Agricultural Research -Eighth meeting of the crops and soils wing of the Board of Agricultural and Animal Husbandry in India - Deputation of delegates from Madras.

Ref: Government Memo. No. 56973 K/49-10 dated 4-1-50.

I suggest that the following officers of the Agricultural Department may be deputed to attend the above meeting.

1. Director of Agriculture, Madras.
2. Deputy Director of Agriculture. (Headquarters) North Madras.
3. Government Agricultural Chemist, Lawley Road P.O.

sd.R.M. Sundaram,

Director of Agriculture.

v.n.m. 3/7/53. /truecopy/

N. Raghavan

57

FOOD AND AGRICULTURE.

AGRICULTURE - Indian Council of Agricultural Research - eithth meeting of the Crops and Soils Wing of the Board of Agriculture and Animal Husbandry in India - Deputation of delegates from Madras Province - Orders passed.

-x-x-x

59

FOOD & AGRICULTURE (K)
Letter No. 56975 k/49-11
dated 10-1-50.

To

The Secretary to the Indian Council
Agricultural Research,
New Delhi. (With enclosures)

Sir,

Sub: AGRICULTURE - Indian Council of Agricultural Research - Eighth meeting of the Crops and Soils Wing of the Board of Agriculture and Animal Husbandry in India.

Ref: Your letter No. F 58 (1)/49-A dated 18-11-1949.

This government's letter No. 56975k/49-9 dated 4--1--1950;

- - - - -

With reference to paras 2 and 3 of your letter cited, I am directed to enclose a copy of this Government's proceedings No. 84 Dated 10-1-50 deputing three officials of this Government to attend the above meeting, and to state that this government have no objection to the council corresponding direct with them on matters relating to the meeting.

2. With reference to para 4 of your letter cited, I am directed to state that as none of the subjects included in the agenda have any direct bearing on cooperative movement, this government do not propose to depute any person to represent cooperative movement in the provinces.

copy to the Director of Agriculture,
Board of Revenue. (.F.P.)
Registrar of Cooperative Societies,
Development department,
S.F.

/true copy/

Compared by N. Rajeswaran.
R. Rohoppandhi

R.M. Sundaram, I.C.S.,
Director of Agriculture.

Chepauk, Madras,
dated 25th January 50.

D.O.D.1.838/49.

Dear Mr. Sethi,

Sub: Indian Council of Agricultural Research
8th meeting of the crops and soils wing
of the Board of Agriculture and Animal
Husbandry in India - Note on item No.6
of the agenda.

Ref: Your D.O. No.F.58 (1)/49 A dated 29-12-1949.

As desired by you I am sending by separate post 300 cyclestyled copies of my note on "the best possible method for extension and development work in agriculture in India for increasing agricultural production".

Srt.R.L. Sethi, Esq., I.A.S,
Agricultural Commissioner,
Indian Council of Agricultural
Research, New Delhi.

Copy to the Secretary, Food and Agricultural, Department, Madras with two copies of the note.

/truecopy/

THE BEST POSSIBLE METHOD FOR EXTENSION AND DEVELOPMENT WORK IN THE AGRICULTURE IN INDIA FOR INCREASING AGRICULTURAL PRODUCTION.

(byR.M. Sundaram, I.C.S., Director of Agriculture, Madras.)

The attention of the nation has been focussed today on the food problem in the country. It is undoubtedly a very unhealthy sign that in spite of the vast area of this country, we have to depend on foreign countries for the import of food costing over onehundred crores of ruppes a year. The difficulties of foreign exchange and over adverse trade balance have added to our troubles and it is therefore of paramount importance that India should be self sufficient in the matter of food. The

freedom that we have won khas to be safeguarded by the economic stability of our nation. Our population has been increasing at an alarming rate of five millions per year and we have therefore two problems. (1) the immediate one of making up the pressing deficit in food and (2) the long range one of feeding the increasing population both quantitatively and qualitiatively. It is a notorious fact that 80% of our population is dependant on agriculture while only 20% lives on industry. This lop sided distribution is a source of danger to the economic stability of our country. Unless we are able to divert a considerable portion ofthis 60% of the population tothe industries, we cannot hope to raise the standard of living of the nation as a whole. The poverty of the peasants is due in a large measure to the low yield of agricultural production. For example while in many other countries in the world the production of rice is over 2,000 lbs per acre, in India it is less than 1,000 lbs.

2. The aim therefore of all agricultural workers in this country should be to step up production. Agricultural research has placed at our disposal sufficient knowledge and has recommended various measures by the adoption of which production can be augumented. There has been the criticism that while agricultural research in India has advanced sufficiently, the results of research have not been transmitted into agricultural practices of the ryots in general. It is this weak link that has now got to be strengthened and hence the necessity for developing extension work.

3. It is generally well recognised that agricultural research in India is proceeding on sound and practical lines. The research workers have to their credit a large number of improved seed strains suited to particular climatic and soil conditions. What is required now is and efficient organisation to multiply the improved seed ensuring their purity and distribute them to ryots at a fair price. Research workers have also to their credit many valuable data on the utility

of agronomic and cultural practices and also the manurial regimen to the adopted. While improved seeds have spread rapidly among cultivators, the other recommendations of the research workers have not spread so fast.

4. If may I may make a few suggestions for our research workers, I may point out that the question of lowering cost of production has to be studied. The ryot would welcome advice not only on increasing his yield but also on reducing the cost of production. I would therefore urge that multipurpose research aimed at solving a number of problems connected with the cost of production should beundertaken by our workers. I would suggest also that there should be greater cooperation among research workers engaged on a particular crop viz., the agronomist, the crop breeder, the chemist, the entomologist and the mycologist. The problems tackled should conform to local requirements as far as possible, high priority being shown to problems which the ryots themselves raise. Research workers should therefore consult frequently and freely agricultural officers who are engaged in extension work. It is unfortunate that district officers do not at present keep in touch with the latest developments of research. The results of research should flow freely to the district officers who in turn can enlighten the ryots on these developments.

5. It is needless for me to point out that the strength of the extension staff of the agricultural department is totally inadequate at present in almost all the provinces in India. In Madras the expenditure on the Agricultural Department has been only 2.4% of the total revenues of the province. Till recently we had only one Agricultural Demonstrator for each tauka comprising about 150 villages scattered over an area of 400 square miles. Each Demonstrator is assisted by two or three fieldsmen (Kamdars) with a menial staff of three or four maistries. This staff is hardly enough to carry on the routine work of the department. The situation in

other provinces must be similar. While financial difficulties stand in the way of strengthening the staff in some provinces, in other the paucity of trained staff is a stumbling block.

6. This inadequacy of staff can be solved to some extent by enlisting non-official support for our work. In other countries in the world like America and England, this solution has been successfully tried. In England the burden of Grow More Food Campaign has been shouldered to a large extent by statutory committees of nonofficial farmers who are entrusted withall responsibilities for briningnew areas under cultivation, for supplying the needs of the farmer and for translating the results of research into farm practices. These committees arehelped by an army of qualified and trained staff and the expenditure incurred is considerable. Unfortunately in this country our problems are different. We have an illiterate agricultural population to whom written propaganda can make no appeal. We do not have large stretches of waste lands which could be cultivated with mechanical aids. But I maintain that our agricultural propaganda during the past decadeshas permeated sufficiently wide so as to make it possible for us to pick out a number of Ryots in each ~~district~~ firka to adopt at least some, if not all, the recommendations of the Agricultural Department. These ryots should be enlisted as our un official propagandists or agriculturalagents. They may hold office as such for a period of two or three years and they may be paid some remuneration to cover travelling expenses. These agricultural agents may be expected to model their own farm practices in conformity with the departmental recommendations. These farms will be demonstration units which the public would be invited to visit and copy. These agents may go round their firkas doing necessary propaganda for the implementation of the departmental recommendations. It is reasonable to expect agricultural improvements ~~x~~ to spread more speedily at the hands of these propagandists who live among the ryots, share their thoughts, ~~xxxxx~~ joys, and sorrows and possess a tie of kinship in

innumberableways. The selection of these agents may be done every two or three years on a competitive basis judged by the nature and quality of work done. This system will thus serve also a s a means of fostering healthy competition among the ryots in running their own farms.

7. In the past, we have adopted a large number of propaganda methods such as printed literature, demonstrations in the field, lectures, radio talks, exhibitions, touring vans etc. But at every stage the high percentage of illiteracy in India, the small areas of the ryots' holdings and his continued poverty have handicapped our propaganda work. The Indian ryot is no doubt conservative but I claim that he is a shrewd individual and would not reject any proposal to increase his yield per acre. Even if he is only a tenant cultivator he would certainly like to obtain greater returns for his toil even during the period of his tenancy. What is therefore required is a correct approach to the ryot. The human element is very important in propaganda and agricultural colleges should be given a course of lectures on the theory and methods of propaganda.

8. In Madras the Agricultural department is running a number of demonstration plots in ryots' own lands, but there has always been the criticism that agricultural farms run by the department are not self supporting. This is no doubt true, but it should not be forgotten that agricultural farms are more in the nature of research stations where the economics of cultivation cannot be properly gauged. To solve this problem, I would suggest that demonstration farms should be run by the unofficial propagandists that I have referred to previously. His farm should serve as a model for the whole firka. It would attract the attention of all intelligentryots and it would be possible to demonstrate that by using modern improved methods as advocated by the department, the yield per acre and the monetary return to the ryots is definitely higher

in these farms than on the ordinary holding of a ryotm.
It goes without saying that this agent should be given special facilities by the Agricultural department in the matter of supplies of improved seeds, manures, fungicides and pestidides and mechanical aids for irrigation. It may not be necessary for the state to stusidise these demonstration farms in any other manner. I therefore commend to this conference that the best method for extension work is the appointment of unofficial propagandists in the firkas and the use of their holdings as model demonstration farms.

Food & Agriculture (K)

to A.S.

Submitted for perusal or the copy of the Director of Agriculture's letter addressed to the I.C.A.R. at page 1 c.f. and the enclosures thereto at p.3.5 above. No action is called for. May be lodged and added to the Original of G.O. at E.

LEGAL DEPARTMENT

Compared by N. Raghavan

20679(a) (K)/50

DEPARTMENT OF AGRICULTURE.

From:

Sri R.M. Sundaram, I.C.S.,

Director of Agriculture,

Madras.

To

The Secretary to Government,

Food & Agriculture Department,

Fort. St. George, Madras.

Sir,

Sub: Agriculture - Indian Council of Agricultural Research - Meeting of the Crops and Soils Wing of the Board of Agriculture and Animal Husbandry - in India - Deputation of delegates from Madras State.

Ref: G.O. No. 84, Food and Agriculture, dated 10-1-50

In the reference cited above, the Director of Agriculture, along with two officers have been deputed to attend the meeting of the crops and Soils wing of the Board of Agriculture and Animal Husbandry in India to be held at Patiala on 28th March onwards.

2. In view of the recent orders posting me as Secretary to Government, Development Department, I regret, I will not be in a position to undertake the journey. I will be probably handing over the charge on Monday the 27th instant. In view of that I am asking Sri M. Kanti Raj who has been deputed, to cancel his trip to Patiala also. Sri Karunakar, Agricultural Chemist, has already left and will be attending to the subject and to the interests relating to Madras State.

/true copy/

R. Rohatgi 7/6

Compared by N. Raghavan. 7/6.

69 FOOD AND AGRICULTURE.

Memorandum No. 20679 (a) K/50 d/27-3-50.

Sub: AGRICULTURE - Indian Council Agricultural Research Meeting of the crops and soils wing of the Board of Agriculuture and Animal Husbandry in India to be held at Patiala from 28-3-50 - Deputation of delegates from Madras state.

Ref: G.O. No. 84, Food & Agriculture d/10-1-50.

2) From the Director of Agriculture Letter No. Nil dated 25-3-50.

- - - -

The arrangements are approved.

The Director of Agriculture, Madras.

/truecopy/

v.n.m.

Letter No. 20679 (a) K/50
28--3--1950.

FOOD & AGRICULTURE.

The Secretary ka,

Indian Council Agricultural Research,

'P'. Block, Raisina Road, New Delhi.

Sir,

Sub: AGRICULTURE - Indian Council Agricultural Research - Eighth meeting of the crops and soils wing of the Board of Agriculture and Animal Husbandry in India convened at Patiala in March 1950.

Ref: (i) Your letter no. F 58 (1)/49 dated 18-1-49,
(ii) This government proceedings No. 84, Food and Agriculture dated 10--1--1950.

I am directed to state that due to exigencis of administration the Director of Agriculutre, Madras and the Headquarters Deputy Director of Agriculture (North) Madras are unable to attend the

p.t.o.

above meeting. The Agricultural chemist, Coimbatore, who is attending the meeting will represent this State.

copy to the Director of Agriculture

/true copy/

v.n.m.

Compared by [illegible]

Not File.

XXX XXX XXX

Food & Agriculture.

summary.

The I.C.A.R. have stated that the eighth meeting of the Crops and Soils Wing of the Board of Agriculture in India will be held early in 1950. The exact date and venue of the meetinghas not yet been announced. The agenda for the meeting will be found at p.3.c.f. The council has suggestedthat this Government may send to the meeting a representative delegation of officials and non-officials with special knowledge of the subjects to be discussed at the meeting and have asked for the names of this Government's delegates. The council has also invited the recommendations of this government regarding the two members representing the cooperative movement in India who have to be appointedby the Chairman of theBoard. Submitted in this connection that as the last meeting of the Crops and soils wing was held in Madras, the forthcoming meeting is likely to be held in some other province or in Delhi.

2. The DA. has suggested the deputation of the following for the ensuing meeting:-

1) OFFICERS OF THE AGRICULTRUAL AND OTHER DEPTS.

(a) Director of Agriculture.

(b) Headquarters Deputy Director of Agriculture (North)

(c) Paddy specialist.

(d) Agricultural chemist.

(e) Secretary to the Commissioner of Food Production.

(ii) Nonofficials on the agricultural side.

Nil.

(iii) PERSONS TO REPRESENT COOPERATIVE MEOVEMENT.

Officials: Nil.

Non-Officials. (a) Sri. B. Ramachandra Reddi, Buchireddipalem.

(b) Sri V.C. Palaniswamy Gownder, Coimbatore

(c) Sri C.T. Tadulinga Mudaliar, Madras.

(d) Sri L.N. Parameswarm Pillai, Lalgudi.

Items (i) & (ii) above.

The constitution of the Board of Agriculture provides among others for the following representatives.

(i) 5 Agricultural officers from each Governer's Province.

(ii) 8 nonofficial members from each Governer's Province appointed by the provincial government from the provincial Board of Agriculture, provincial committee for Agricultural research or similar organisations.

It would be seen from the statement at flag B that except fro the last meeting held at Madras in April 1948, no non officials have been deputed in the past to represent the agricultural side and that the number of officers of the Agricultural department deputed to attend the meeting outside the province did not always exceed three. Submitted in this connection that out of five names suggested by the Director of Agriculture, the Paddy Specialist and the Agricultural chemist have submitted notes on the various items of the agenda.

It is considered that the number of official representatives on the agricultural side may be xl restricted to three and that their T.A. for attending the meeting may be met by this government as usual. Finance department have accepted this suggestion. It is for orders which of the three officers among the five names mentioned at 'A' on pp.7 & above will be selected by Government for attending x the meeting.

the selection may be done by D.A.

Item 3.

It is considered not necessary to suggest any names to represent the cooperative movement as none of the subjects included in the agenda have any direct bearing on cooperative movement. For orders whether the view will be agreed to.

The case may be circulated to H.M. (agri) for orders on 'M' at p. 8 above and 'N' on p.8-9 above.

A. u.o,note
56973 k/49-8
d/29-12-49

Development
no.125702
Biii/49-1
30-12-49

May be perused and returned to Food & Agriculture.

DS.

From the I.C.A.R letter No. F. 58(1)/49-Ad/29-12-49.

To A.S. Notes from the middle of page 7 above and the subsequent letter received from the I.C.A.R ar pages 81-82 c.f. may be perused. It is now gathered that the ensuing meeting of the crops and soils wing will be held at Patiala some time in March next. The requisite copies of the notes on the agenda at page 3 c.f. prepared by the offices of the agricultural department have already been sent to the council.

The case may now be circulated to H.M. (Agri) for orders on M on page 8 above and N on pages 8-9 above.

S.
H.N.
H.M.N(AGRI).

To A.S. (Orders in circulation at the bottom of p. 9 above.)

A draft memo to the Director of Agriculture and a draft interim reply tothe I.C.A.R. are submitted for approval

Issued as memo. No. 56973K/49-9 dated 4-1-50
letter No.56973K/49-10 d/ 4-1-50
From the Director of Agriculture letter No. R.O.C. D. I. 882/49 d/7-1-50.

To.A.S.

With reference to the memo at pages 85-86 c.f. the D.A. has suggested that the following from among the five originally suggested by him may bedeputed to attend the 8th meeting of the maximum crops and soils and wing of the Board of Agricultural and Animal Husbandry in India.

1. The Director of Agriculture.
2. The Headquarters Dy. Director of Agriculture, North Madras.

3. The Government Agricultural chemist, Lawley Road PLO.

The names of the above officers may perhaps be approved. For orders. Subject to orders a draft order is submitted for approval. Yes.

The I.C.A.R. may also be informed as at 'NS on p.8 9 above. A draft letter is submitted below for approval. They may issued after ciruclation to H.M. AGRI. Yes. No need to circulate again.

Sub: AGRICULTURE - I.C.A.R. 6th meeting of the crops and soils wing of the Board of Agriculture and Aniamal Husbandry in India ~~xxthxx~~ to be held in Patiala in March 50 - Deputation of delegates from Madras state.

Ref: letter no nil dated nil from the DA.

TO A.S. In G.O. No. 84 F. & A. dated 10-1-50 the government deputed the fellewing officials to attend the 6th meeting crops and soils wing of the Board of Agriculture and Animal husbandry in India to be held ~~in~~ at Patiala during March

1. The Director of Agriculture, Madras.
2. The Headquarters ~~of~~ Deputy Director of Agriculture, [illegible]
3. The government Agricultural chemist, Coimbatore.

The agenda for the meeting will be found at 3 of. of the G.O. at 8 . The notes prepared by the fellewing officers of the agricultural department for discussion at the above meeting have already been forwarded to the council.

1. The Director of Agriculture.
2. The government agricultural chemist.
3. Millet specialst ~~specialxxxx~~
4. Cotton specialst spe
5. Fruit specialist
6. Oilseeds specialist
7. Paddy specialist
8. Govt. Lecturing and systematic Botanist.
9. Agricultural meterelogist.

The Director of Agriculture has now reported thatthe above meeting will be held at Patiala (East Punjab on 28th March onwards. No information is available the acutal number of days of this meeting. For the stated at 'A' on p.l. c.f. the D.A. reports that it wil not be possible for him to attend this meeting. He has also reported that he has asked the Headquarters Dy. Director o Agriculture (North) to cancel his trip to Patiala. The D.A. that the agricultural chemist who has already left fo the meetingwill attend to the subjects and interests of th Madras state. For orders whether the I.C.A . R. be informed officially about the position. The case maybe c culated. One representative (the agriculutral chemist) is attending. That would do.

S.S.

H.M. Agir)

Issue memo on p.l.c.f.

Issued as memo No. 20679 (a) K/50 dated 27-3-50.

With reference to orders at A on p.l. above the draft letter to I.C.A.R. below is for approval.

D.S.

(TRUECOPY)

SUPERINTENDENT.

V.N.M.
5/6/

Compared by N. Raghavan.